



Ludwig Boltzmann Institut

für Stadtethologie



GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

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FOR IMMEDIATE RELEASE

**WOMEN'S SKIN TONE INFLUENCES PERCEPTION OF BEAUTY, HEALTH, AGE,
SCIENTISTS FIND**

Skin Discoloration, Uneven Tone Can Add Years to Perceived Age

Cincinnati, OH (October 26, 2006) □ A new study is revealing that wrinkles aren't the only cue the human eye looks for to evaluate age. Facial skin color distribution, or tone, can add 10-12 years to a woman's perceived age.

The study, published in the latest issue of the journal *Evolution and Human Behavior*, used three-dimensional imaging and morphing software to remove wrinkles and furrows from pictures of women, leaving skin tone as the only variable. Researchers were then able to determine exactly what impact facial skin tone has on how young, healthy and attractive people perceive the women to be. Faces with more even skin tone were judged to be younger.

"Until now, behavioral scientists have mostly ignored the overall homogeneity and color saturation of a person's skin," says lead researcher Dr. Karl Grammer. "This study points out that wrinkles aren't the only visual cue to a woman's age.

"Skin tone and luminosity may be a major signal to suitors of a woman's attractiveness, as well as of her assumed age," said Grammer, who is founder and scientific director of the Ludwig-Boltzmann-Institute for Urban Ethology at the University of Vienna, Austria.

The researchers took digital photographs of 169 Caucasian women between the ages of 10 and 70. Then they used specialized morphing software to "drape" each subject's facial skin over a standardized model, in effect, taking 169 different skin tones and applying them to a common canvas.

In the process, other potential age-defining features such as facial furrows, lines and wrinkles were removed, leaving skin tone as the only variable. Then, these models were viewed by 430 observers who were asked to estimate each model's age and gauge her health and attractiveness.

The models who had the most even skin tone received significantly higher ratings for attractiveness and health, and were also judged to be younger in age. The models with uneven, blotchy skin tone were judged to be significantly older.

"Whether a woman is 17 or 70, the contrast of skin tone plays a significant role in the way her age, beauty and health is perceived," says study co-author Dr. Bernhard Fink. "An even skin tone can give visual clues about a person's health and reproductive capability, so it is considered most desirable."

Fink, a senior scientist in the Department for Sociobiology/Anthropology at the University of Goettingen, Germany, said the work is important for women considering efforts to improve their tans. "We found that cumulative UV damage from too much sun dramatically influences skin tone, giving women yet another reason to prevent future UV-related skin damage or try to correct past sun damage."

The researchers said that tone variances could be caused by several factors including cumulative UV damage (freckles, moles, age spots), natural aging (yellowing, dullness) and skin vascularization (redness). Not surprisingly, the study hinted at a positive correlation between the amount of accumulated photodamage and the amount of uneven skin tone.

Next Phase of Tone Research – Getting Under the Skin

As a next step, Drs. Grammer and Fink will partner with scientist and skin imaging expert Dr. Paul Matts, from P&G Beauty (a division of Procter & Gamble that funded the study) to look at the distribution of 3 chromophores – melanin, hemoglobin, and collagen -- in the skin of study subjects and correlate this distribution with perceived attractiveness. A non-invasive imaging technology called SIAscopy—originally developed by UK-based Astron Clinica for early skin cancer detection—will help the scientists study the chromophores. These 3 chromophores directly affect how the human eye perceives qualities such as luminosity in young skin or dullness in aging skin.

"Because skin has optical depth, our eyes perceive discolorations on the surface and in underlying layers. This discoloration can be subtle or overt. We believe the judgment of facial skin age is influenced by uneven chromophore distribution and a decrease in light reflection," says Grammer.

Images as well as additional information on the study are available upon request.

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About Ludwig-Boltzmann-Institute for Urban Ethology

The Ludwig-Boltzmann-Institute for Urban Ethology was founded in 1972. It is a division of the Ludwig Boltzmann Society for the promotion of the sciences, a semi-public non-profit institution for the promotion of the sciences in Austria. The institute works on a multidisciplinary basis. The scientific staff consists of medical doctors, psychologists and sociologists. It is financed by a subsidy from the Ludwig-Boltzmann-Society, the Austrian Federal Ministry for Education, Science and Culture and through contracts for research projects. The Ludwig-Boltzmann-Institute is one of 45 research institutes belonging to the Ludwig-Boltzmann Society.

About the University of Goettingen, Department of Sociobiology/Anthropology

The Department of Sociobiology/Anthropology at the University of Goettingen devotes its research to the scientific study of behavior in humans and primates. The scientific staff consists of anthropologists, ethologists, behavioral ecologists and geneticists, and research involving humans focuses on the study of physical attraction and the hormonal basis of behavior. The department's activities are mainly funded by the University of Goettingen and the German Volkswagen Foundation.

About P&G Beauty

P&G Beauty science has more than 1,800 scientists and technical employees working at nine global technical centers with an unparalleled commitment to technology development. Company scientific efforts have resulted in over 3,500 active beauty care patents. This allows P&G to develop products uniquely suited for different types of hair and skin, and tailored to different cultures and climates. P&G scientists are constantly seeking new ways of turning inspiration into innovation.

P&G Beauty sells more than 130 different brands in over 180 countries worldwide that touch and improve lives daily. P&G Beauty had more than \$19 billion in global sales in fiscal year 2004/05, making it one of the world's largest beauty companies. The global leading beauty company at mass, P&G Beauty brands include: Pantene[®], Head and Shoulders[®], Olay[®], Max Factor[®], Cover Girl[®], Gillette[®] Complete Skin Care for Men, Always[®], Joy[®], Hugo Boss[®], Wella[®], Herbal Essences[®], Clairol Nice 'n Easy[®] and SK-II[®]. Please visit www.pg.com for the latest news and in-depth information about P&G Beauty and its brands.